Expansion Of Two-Dimensional Imaging Apertures For Resolutionimprovement In Long-Wavelength Holography

Abdel-Aal, R.E.;King Fahd Univ. of Pet.Miner., Dhahran;

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King Fahd University of Petroleum & Minerals

http://www.kfupm.edu.sa

Summary

A method is described for improving resolution in long-wavelength holography by expanding the two-dimensional hologram aperture. Simulation results are presented to illustrate resolution improvements obtained when doubling the linear size of square apertures for imaging single-point, multiple-point and quasi-continuous objects in the presence of noise. A technique for improving the quality of images reconstructed from predicted holograms using a number of focus measures is described. Alternative strategies for reconstructing the two-dimensional holograms are discussed and their performance compared regarding prediction errors and noise. Data is supplied on CPU time usage for hologram expansion and reconstruction on a VAX-11/785 computer